Inquiry: What alternative to the requirements for alert and required action vibration acceptance criteria may be used when applying the applicable Code reference value paragraph in Subsections ISTB and ISTF in the ASME OM Code and the applicable Code pump test acceptance criteria tables listed in ASME OM Code (listed in Table 1 below) when vibration readings, taken to establish reference values, are extremely low, such as ≤ 0.050 inches/sec?

Reply: It is the opinion of the Committee that the following alternative requirements may be used in lieu of the applicable Code reference value paragraph in Subsections ISTB and ISTF in the ASME OM Code and the applicable Code pump test acceptance criteria tables in the ASME OM Code (listed in Table 1 below) for pumps with very low reference value vibration levels.

Applicability: See Applicability Index.

Table 1 Paragraph and Table Cross-Reference

<table>
<thead>
<tr>
<th>“Reference Values” Para. Number</th>
<th>Centrifugal Pump Table</th>
<th>Vertical Line Shaft Centrifugal Pump Table</th>
<th>Positive Displacement Pump Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISTB-3300</td>
<td>Table ISTB-5121-1</td>
<td>Table ISTB-5221-1</td>
<td>Tables ISTB-5321-1, ISTB-5321-2</td>
</tr>
<tr>
<td>ISTF-3300</td>
<td>Table ISTF-5120-1</td>
<td>Table ISTF-5220-1</td>
<td>Tables ISTF-5320-1, ISTF-5320-2</td>
</tr>
</tbody>
</table>

REQUIREMENTS

For pumps with very low baseline vibration values with a pump vibration velocity measurement of ≤ 0.050 in/sec when establishing the vibration reference value, a minimum reference value of 0.050 in/sec shall be used to establish the acceptable range, Alert Range and Required Action Range in accordance with the applicable pump test acceptance criteria table listed in Table 1 above.

The individual vibration measurements for pumps within the scope of this Code Case shall be documented within the Inservice Testing (IST) program for trending of pump performance.

For these pumps with very low vibration values, the following vibration velocity criteria shall be applied to any vibration test points qualifying for the use of the "minimum reference" value:

Acceptable Range: ≤ 0.125 in/sec
Alert Range: > 0.125 in/sec to 0.300 in/sec
Required Action Range: > 0.300 in/sec

SUPPLEMENTAL MONITORING

Pumps that will use the "minimum reference" value for one or more vibration points shall be included in the Owner’s Predictive Maintenance (PdM) program. The PdM program shall apply predictive monitoring techniques and perform vibration analysis beyond the trending of vibration levels specified in the ASME OM Code to provide early identification of pump performance issues. The Owner shall determine which PdM Supplemental Monitoring activities will be utilized on the pump.

At a minimum, the Owner shall perform spectral analysis of measured vibration of the applicable pumps. The Owner shall document the conclusion of the PdM performance analysis on the pump test record prior to the subsequent test with a conclusion of acceptable, degrading but acceptable, or unacceptable. Corrective action shall be initiated when an unacceptable trend in performance is identified.
CORRECTIVE ACTION

If a measured pump vibration parameter falls within the alert range or the required action range specified above, then the Owner shall follow the required actions within the edition/addenda of the applicable Code (for example, ISTB-6200 or ISTF-6200 for the 2015 Edition of the ASME OM Code). The alert and required action ranges are established in accordance with this Code Case rather than the referenced pump tables.

If a PdM Supplemental Monitoring activity identifies a parameter outside the normal operating range or identifies a trend toward an unacceptable degraded state, action shall be taken to (1) identify and document the condition in the corrective action program, (2) increase monitoring to establish the rate of change of the monitored parameter, (3) review component-specific information to identify the degradation cause, (4) develop a plan to remove the pump from service to perform maintenance prior to significant performance degradation, and (5) address potential common cause issues applicable to other pumps based on the results of the analysis of the specific pump performance.